

IN THE CLAIMS:

**1. (Previously Presented)** A method executed in a receiver that combines a decoder with an equalizer in a single module, comprising the steps of:

    said receiver receiving at time  $k$  a signal  $r(k)$ ;

    selecting a trellis transition corresponding to symbol  $s$  that minimizes the metric

$$\xi_j(k) = \left| r(k) - \sum_{l=L_1+1}^{L_1} \tilde{h}_j(l) \tilde{s}(k-l) - \sum_{l=L_1+1}^{L+1} \tilde{h}_j(l) \hat{s}(k-l) \right|^2$$

where  $\tilde{h}_j(l)$  is related to both the transmission channel and to the encoding structure in a transmitter,  $\tilde{s}(k)$  is a trial symbol specified by a selected trellis transition and  $\hat{s}(k)$  is a symbol that was previously decided; and

    applying said symbol  $s$  to subsequent circuitry of said receiver.

**2. (Previously Presented)** The method of claim 1 where the were said selecting of a trellis transition is chosen to improve performance of equalization.

**3. (Currently Amended)** A receiver having a plurality of antennas comprising:  
    an equalizer responsive to signals received by said antennas from a transmitter via a transmission channel;  
    a mapper responsive to said equalizer; and  
    a decoder responsive to said mapper, where  
        said equalizer is responsive to both, transmission parameter value[[s]] estimates of said transmission channel, and to multi-transmitting-antennas encoding schema.

**4. (Previously Presented)** The receiver of claim 3 where said signal are developed in said transmitter by applying an outer coder to information signals, mapping results of said outer coder, and passing results of said mapping through a trellis encoder.